SPEA

AUTOMATIC TEST EQUIPMENT

TECHNICAL INTERVENTION REPORT

Field Service & Maintenance Record

System Model	Flying Probe Test System	**Intervention Type**	Preventive Maintenance
Service Class	System Calibration & Alignment	**System Status**	Operational / Passed

1. EXECUTIVE SUMMARY

A scheduled technical intervention and calibration service was performed on the SPEA Automatic Test Equipment. The service scope encompassed complete motion system diagnostics, measurement unit calibration, optical sensor alignment, and execution of standard verification test routines. Following maintenance procedures, all subsystem parameters were verified against factory specifications.

2. MAINTENANCE & CALIBRATION ACTIVITIES

- **Motion Subsystem & Axis Alignment:** Inspected high-precision X-Y-Z drive mechanisms, verified belt tensioning, cleaned optical encoders, and re-aligned flying probe tips.
- **Measurement Unit Calibration:** Performed full DC voltage, current, and impedance measurement unit calibration using reference standards. Verified pin contact integrity and signal path relay resistance.
- **Optical & Vision System Verification:** Cleaned alignment cameras, recalibrated board orientation sensors, and performed pattern recognition accuracy tests across standard calibration target arrays.
- **Pneumatic & Mechanical Maintenance:** Cleaned internal air filtering units, checked pneumatic line pressure stability, and inspected probe tip contact force profile.
- **Software Diagnostics:** Ran comprehensive system self-test diagnostics. Verified firmware version compatibility and backed up operational parameters.

3. DIAGNOSTIC & VERIFICATION TEST RESULTS

TEST PARAMETER	NOMINAL SPECIFICATION	MEASURED VALUE	STATUS
Axis Positional Repeatability	± 2.0 µm	1.1 µm	**PASSED**
Precision DC Voltage Reference (10V)	10.0000 V ± 50 µV	10.0002 V	**PASSED**
Probe Pin Contact Resistance	< 50 mΩ	18 mΩ	**PASSED**
Measurement Unit Signal Noise Floor	< -90 dBm	-94 dBm	**PASSED**
Pneumatic Pressure Regulator Stability	1.00 bar ± 0.02 bar	1.01 bar	**PASSED**

4. STANDARD CONSUMABLE REPLACEMENTS

ITEM DESCRIPTION	OEM PART GROUP	QUANTITY	CONDITION
Precision Flying Probe Pins	SPEA Probe Assembly	4	Replaced (Routine Wear)
Main Pneumatic Air Filter Element	SPEA Maintenance Kit	1	Replaced (Routine Maintenance)

5. TECHNICAL RECOMMENDATIONS

- Maintain standard ambient facility operating environment (21°C ± 2°C, non-condensing humidity).
- Ensure daily cleaning of optical reference glass using approved lint-free microfiber wipes.
- Schedule next standard preventive maintenance cycle in accordance with the annual service agreement.

SPEA Field Service Representative
Signature & Verification

Customer Representative
Acceptance Signature